FELL STANDING TIMBER

CHAINSAW

COMPONENTS

- Oilamatic chain
- Guide bar
- Guide bar nose
- Bumper spike
- Chain brake
- Front handle
- Front hand guard

COMPONENTS

- Spark plug terminal

Spark plug / Filter cover

Stihl

Twist Lock

Husqvarna

Snap Locks

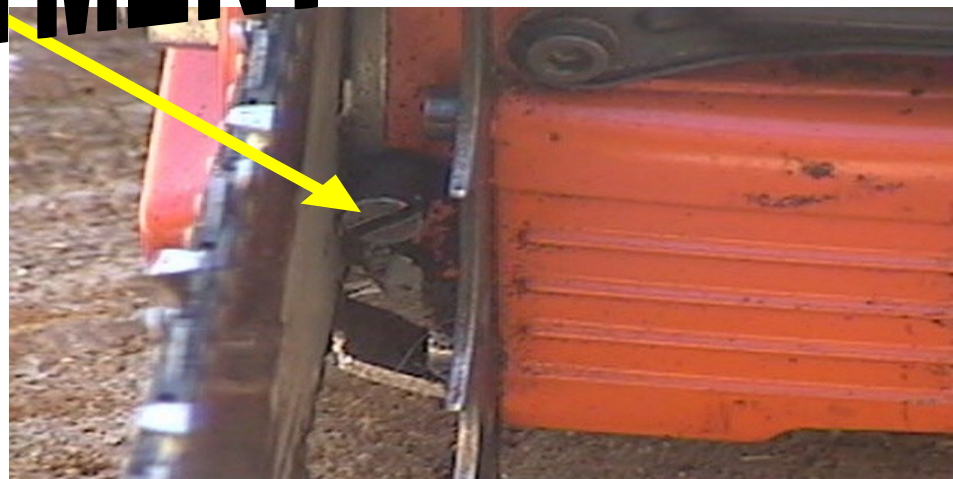
COMPONENTS

- Chain tension adjustment screw

Stihl

TENSION ADJUSTMENT SCREW

Husqvarna

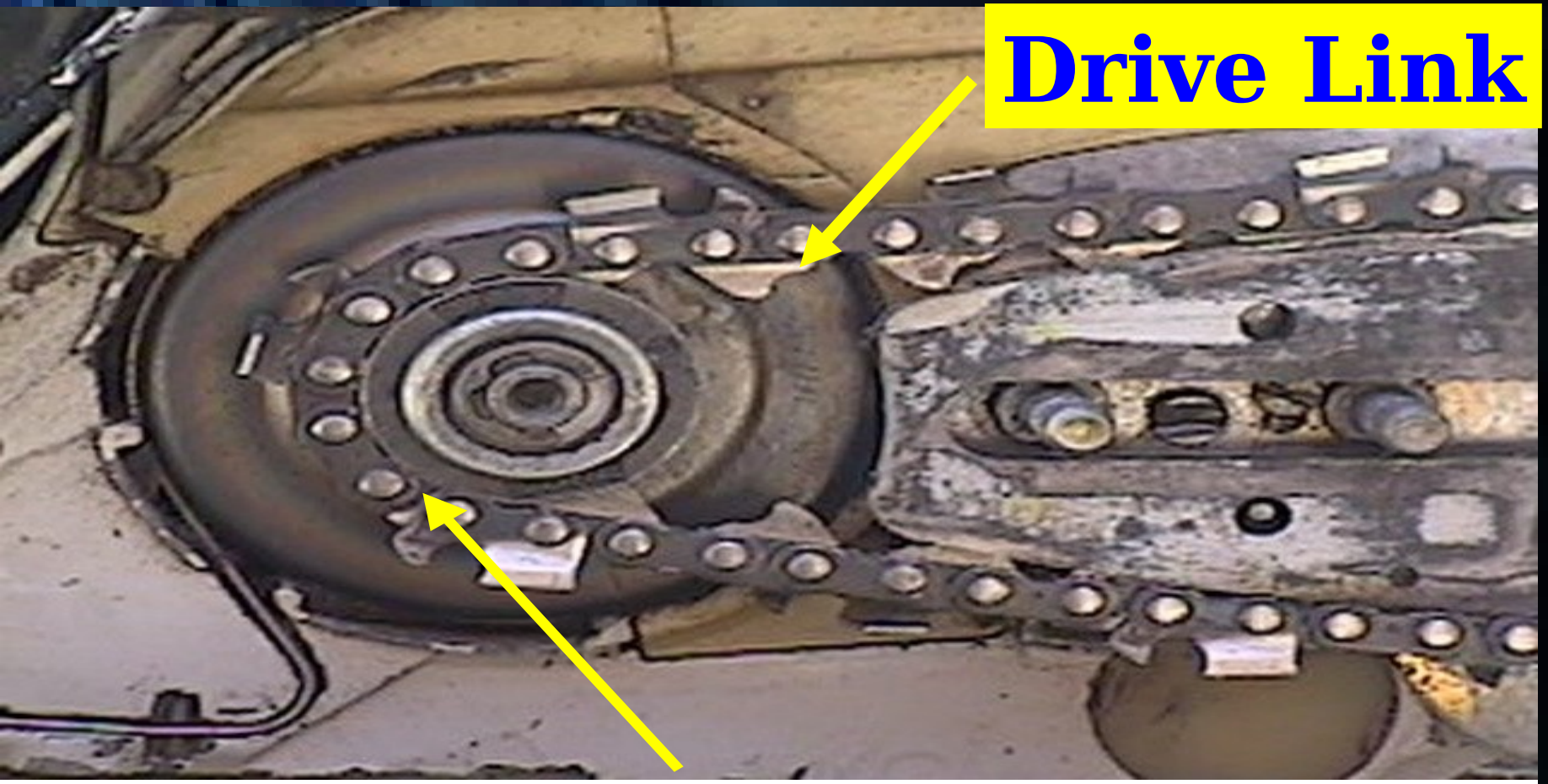


COMPONENTS

- **Rear handle**
- **Rear hand guard**
- **Chain catcher**

Components of the Chain S

Chain Sprocket



- Check the chain (on the sprocket)

COMPONENTS

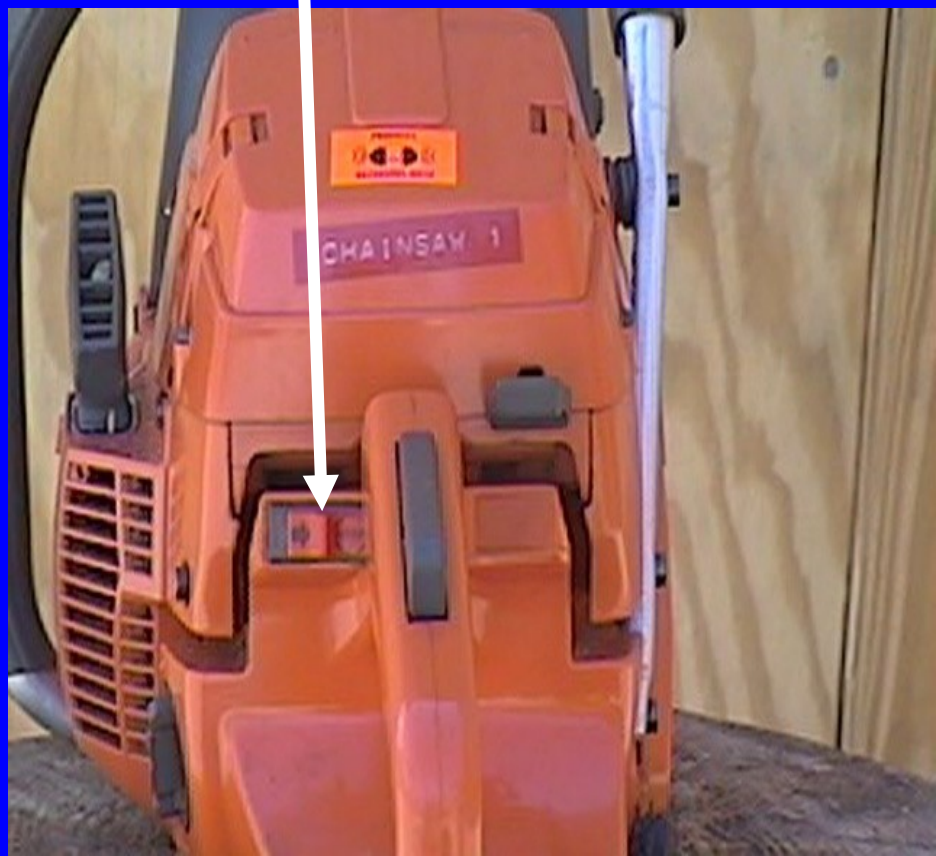
- Chain sprocket cover

Components of the Chain Saw

Master Control Lever

Stihl

Husqvarna



COMPONENTS

- **Throttle trigger interlock**
- **Throttle trigger**

COMPONENTS

- **Chain guard**
- **Muffler**
- **Starter grip**
- **Oil filler cap**
- **Fuel filler cap**
- **Handle heating switch**

FUEL REQUIREMENTS

- **Unleaded 87 octane**
- **High quality, two-cycle motor oil**
- **Approximately 2.5 ounces of two-cycle oil per gallon of gas**
- **SAE 30 wt or 40 wt can be used**
- **When using 40 wt use 32:1**
- **When using 30 wt use 16:1**

MIX RATIO TABLE

Gasoline	SAE 40 32:1	SAE 30 16:1
1 gallons	1/4 pt	1/2 pt
2 gallons	1/2 pt	1 pt
3 gallons	3/4 pt	1 1/2 pt
4 gallons	1 pt	2 pt
5 gallons	1 1/4 pt	2 1/2 pt

FUEL REQUIREMENTS

- **Measure the exact amount of oil and gasoline required and pour into a clean, safety approved fuel can.**
- **Never mix oil and fuel directly in the gas tank on the saw.**

CHAIN REQUIREMENTS

- **Chain oil**
  50-104 degrees SAE 30
  14-49 degrees SAE 20
  13 degrees or less use SAE 10
- **Chain saws with an automatic oiler**
- **Chain saws with a manual oiler**

SHARPENING

- FILES
  - DIFFERENT SIZES
  - ONLY ROUND WILL WORK
- WHEN TO SHARPEN
  - NOTICE FINE SAWDUST
  - CRESCENT CUT WITH BLADE
- UNSERVICEABILITY
  - CRACKS IN METAL
  - DOES NOT FIT THE BAR
  - CUTTERS MISSING.

- Clear the area
- Visually check fuel level and chain oil level
- Check the chain (on the sprocket)
- Check the bar
- Adjust the chain tension (as required)

- Pull out the starting cord
- Check the choke
- Check the trigger
- Put on safety equipment
- Engage the chain brake

- **Keep left arm on the front handle**
- **Start on ground level**
- **Pull the starter grip slowly**
- **Repeat above step until chain saw begins to run**

STIHL
STIHL
TIMBERSPORTS

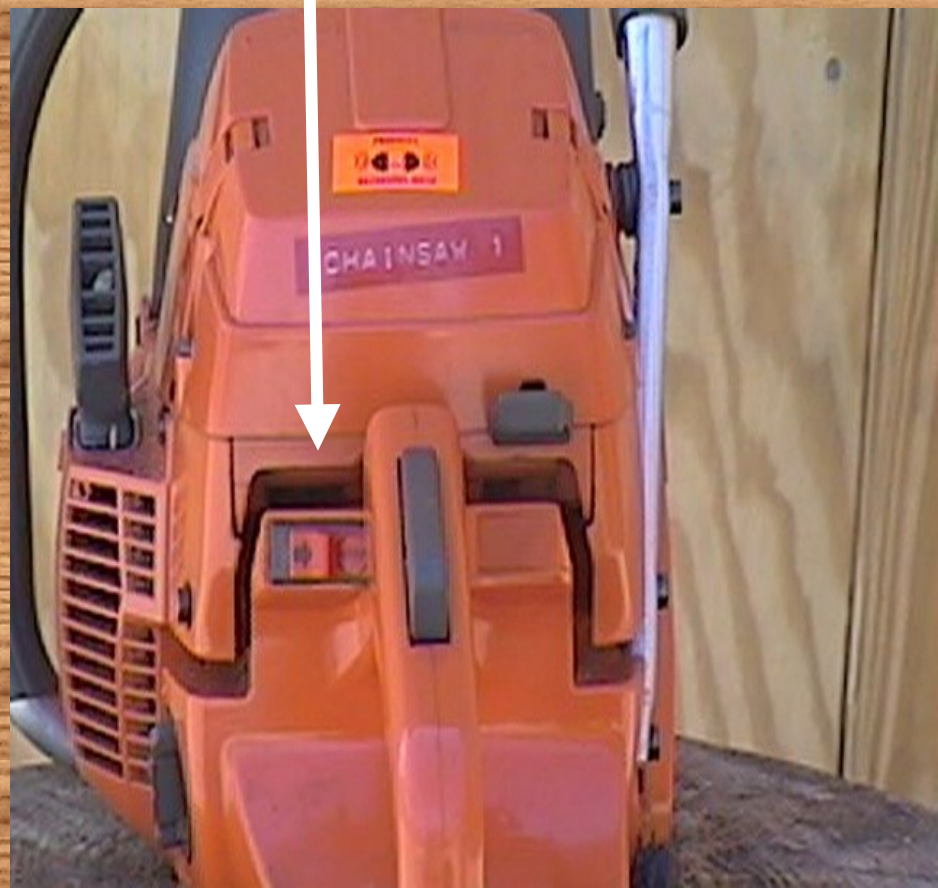
- **As soon as it begins to run, immediately squeeze the throttle trigger to disengage it from the starting throttle position**
- **Disengage the chain brake**
- **Stop by moving MCL to OFF**

Starting and Operating

Shut Down by Moving Master Control Lever to Off.

Stihl

Husqvarna



- **Always read the operators manual**
- **Do not operate chain saw when you are fatigued - *Be alert at all times !***
- **Wear proper clothing**
- **Never modify a chain saw**
- **Set the saw on the deck, engage the brake, stop engine - *deck, brake, off***

- **Avoid touching the hot muffler!**
- **Always make sure the hex nuts for the sprocket cover are tight**
- **Never start the chain saw with the sprocket cover loose**
- **Never try to tighten the chain while the chain saw is running.**

- **Fueling: Do not smoke or bring any fire or flame near the fuel**
- **Do not drop start**
- **Do not use a saw with incorrect idle speed adjustment**
- **Hold chain saw firmly**

- **Do not operate with throttle lock engaged**
- **Do not cut any material other than wood**
- **Never work while standing on a ladder**
- **Never use the chain saw above the shoulder**
- **Avoid kickback**
- **Avoid pull-in**

10 MINUTE BREAK

PIONEER TOOL KIT

- **LAND CLEARING TOOLS:**
- **ADZ**
- **BRUSH HOOK**
- **SINGLE BIT AXE w/ TIMBER WEDGE**
- **MACHETE**

PIONEER TOOL KIT

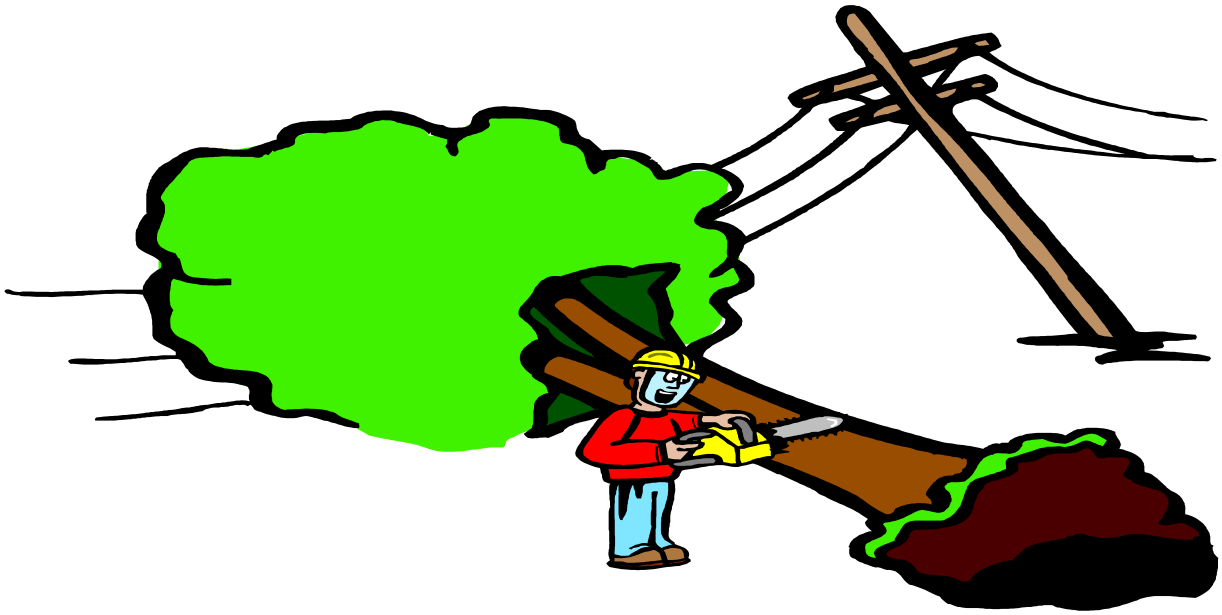
- **LOWER LIMB REMOVAL:**
  - **TREE/POLE CLIMBER'S SET**
  - **INDUSTRIAL SAFETY BELT**
  - **INDUSTRIAL SAFETY STRAP**

ADDITIONAL TOOLS

- **FIBER ROPE**
- **WINCH**
- **CHAIN**
- **PEAVEY**
- **TIMBER CARRIER**
- **MECHANICAL EQUIPMENT MEANS**

FALLING STANDING TIMBER

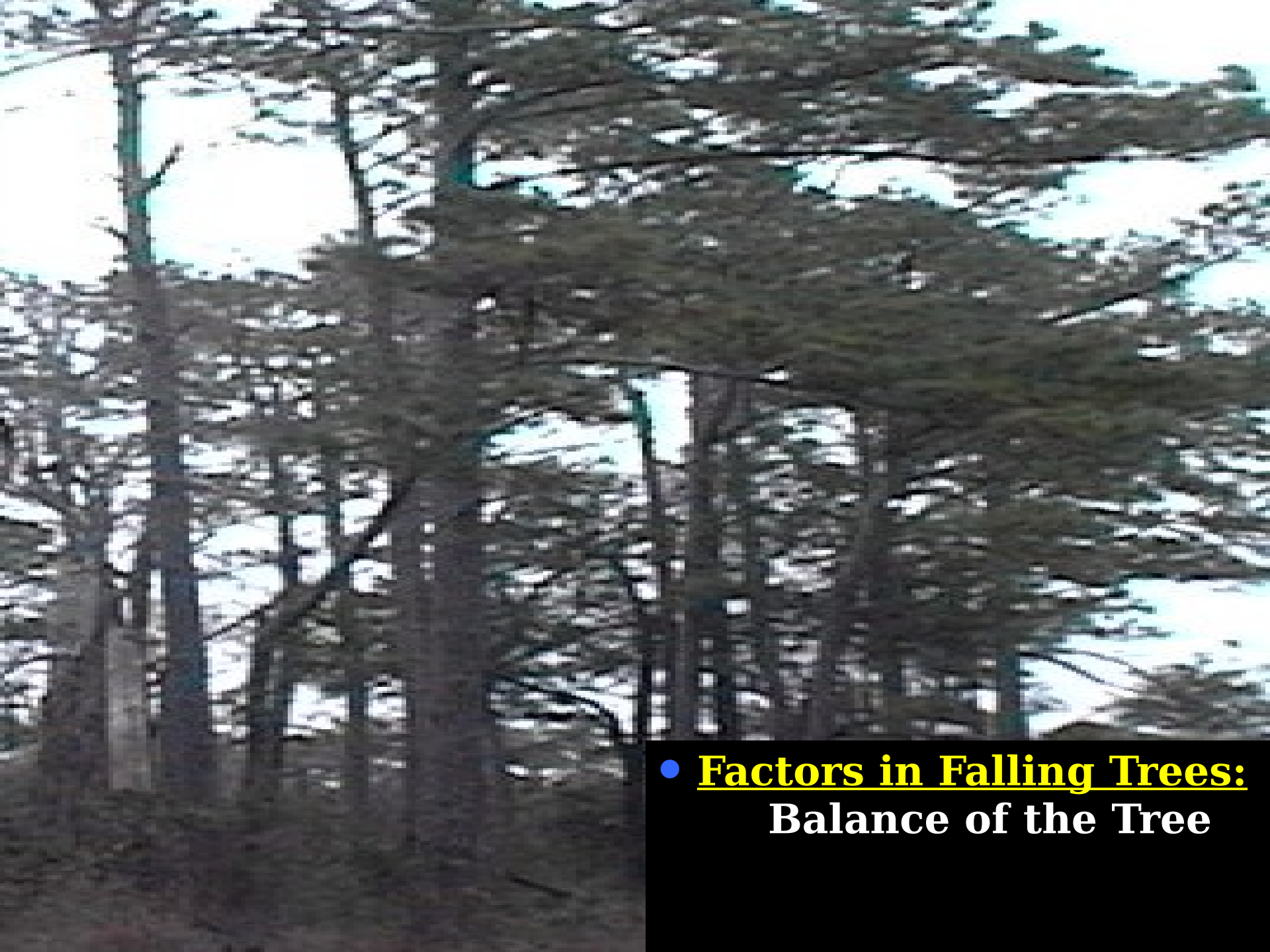
- **Factors in Falling Trees:**



Factors in Falling Trees:

Natural lean

Factors in Falling Trees:
NATURAL LEAN



- **Factors in Falling Trees:**
  Balance of the Tree

- **Factors in Falling Trees:**

  Condition of Trunk: Sound, Hollow, or

- **Factors in Falling Trees:**
  Dead Limbs

DIRECTION OF FALL

- **Examine the tree location**
  > Do Not Fall One Tree Into Another
- **If the tree lean is less than 5 degrees, it can be dropped in any direction**
  > It is easier and safer to fell a tree in the direction that it is already leaning.
  > This allows gravity to do the work.

- **If the tree lean is more than 5 degrees, the tree can be dropped up to 45 degrees right or left of the lean**

DIRECTION OF FALL

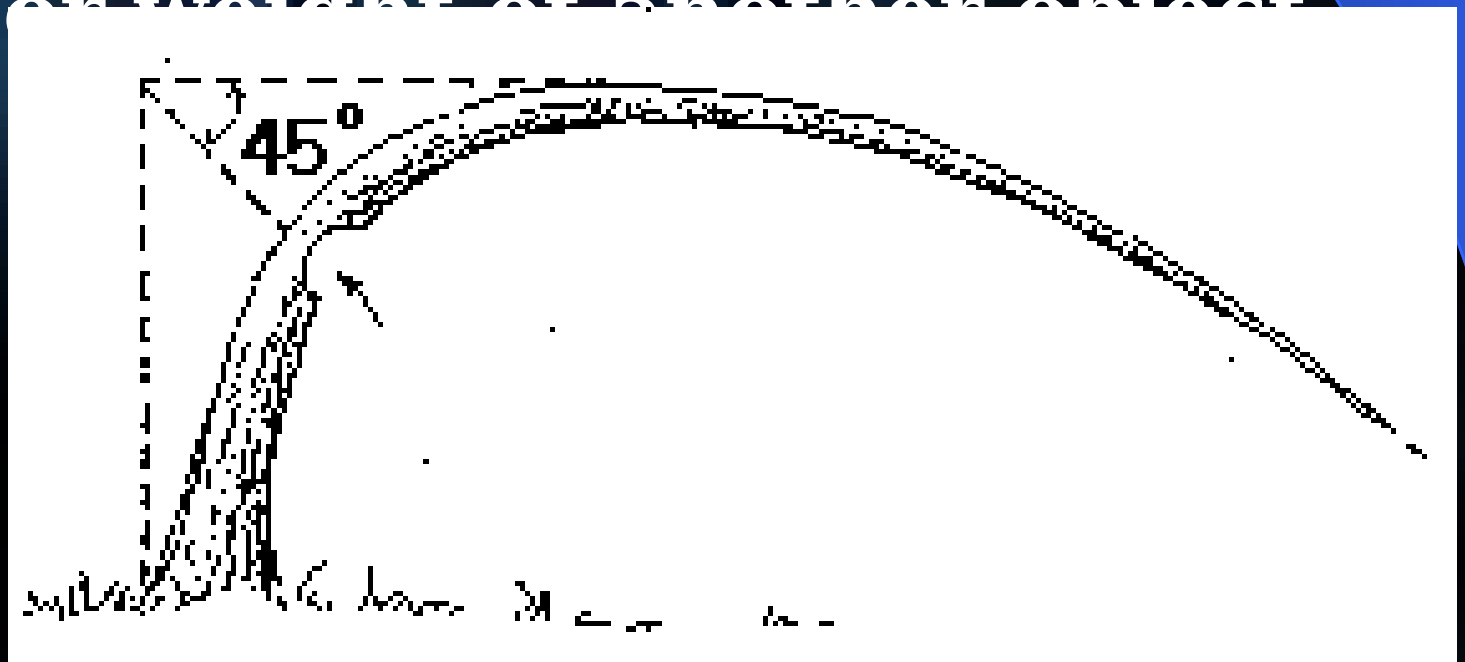
- **Do not drop the tree uphill**
- **Consider ease of removal**
- **Once the direction of the fall is determined, clear away all the brush and low hanging branches**

Watch out for

- **Throwback, Widow Makers, Snags & Spring Poles**

Spring Pole

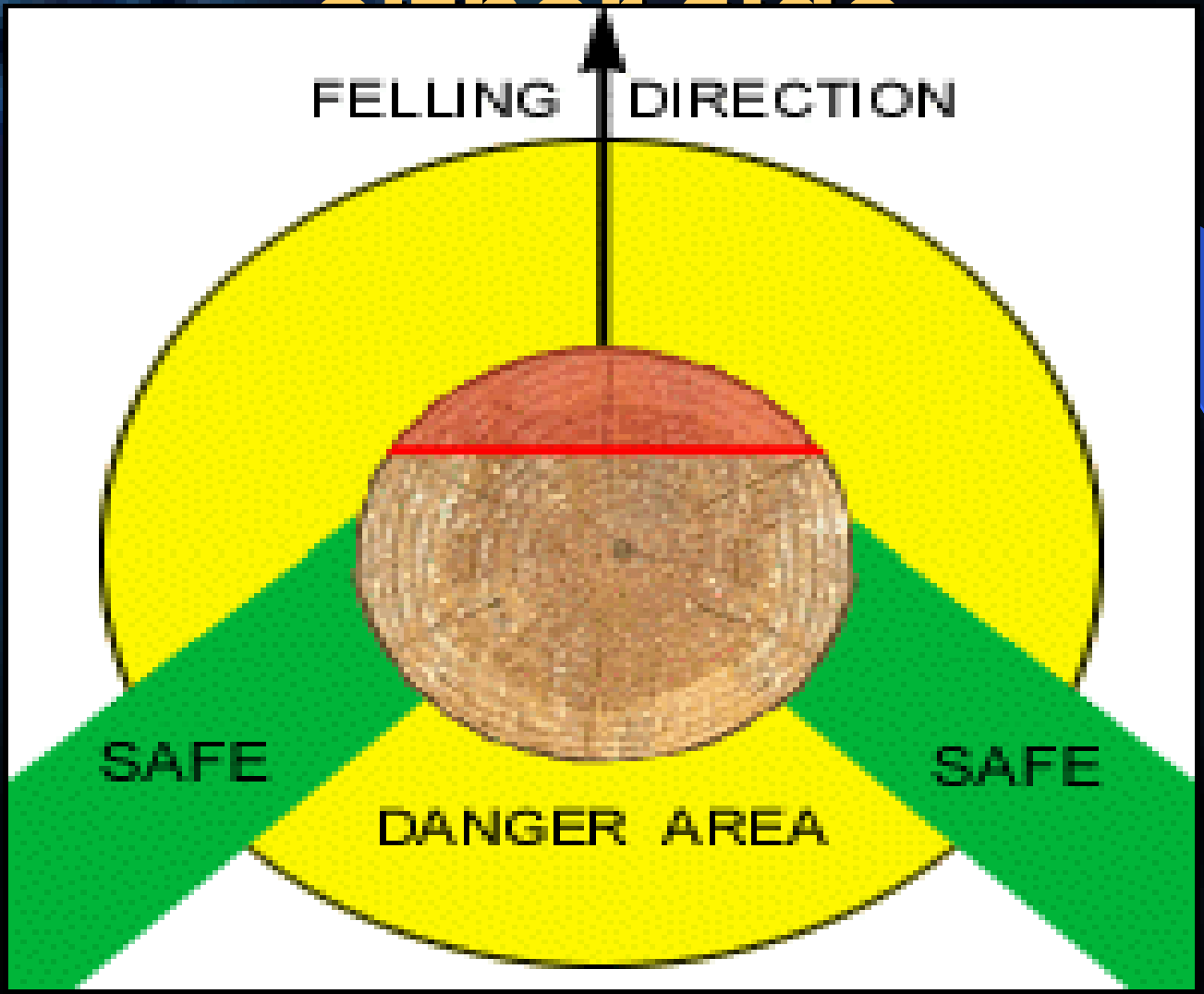
- A tree, segment of a tree, limb, or sapling that is under stress or tension due to the pressure or weight of another object



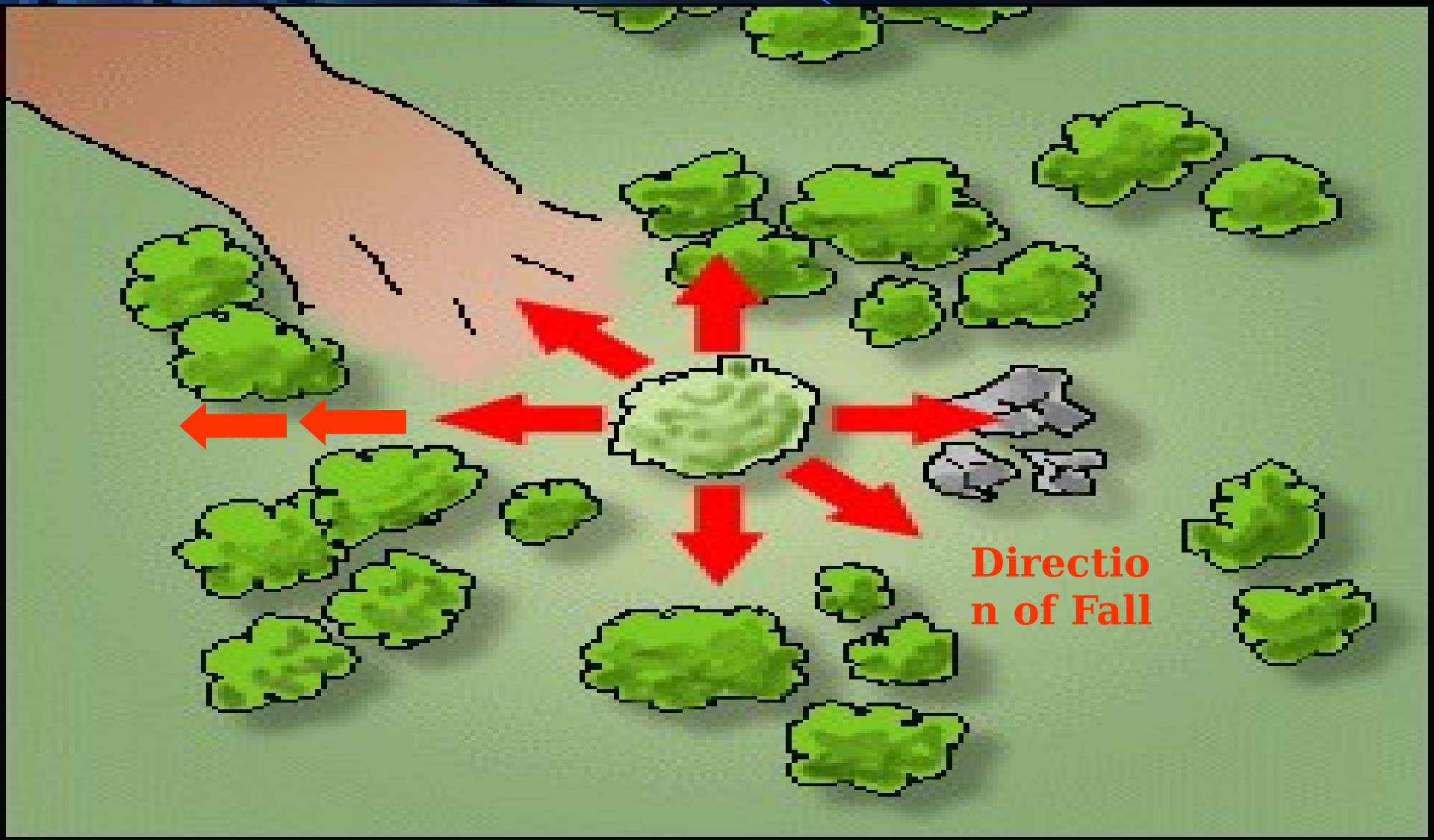
Planning Your Escape Path

- **Plan your escape route and clear a path BEFORE you begin cutting**

Escape 45 degrees from the sides and back on either side



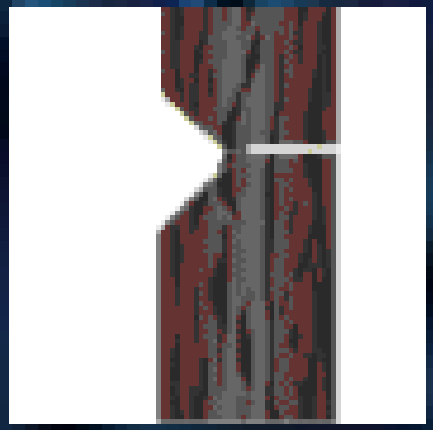
DIRECTION OF FALL / ESCAPE PATH

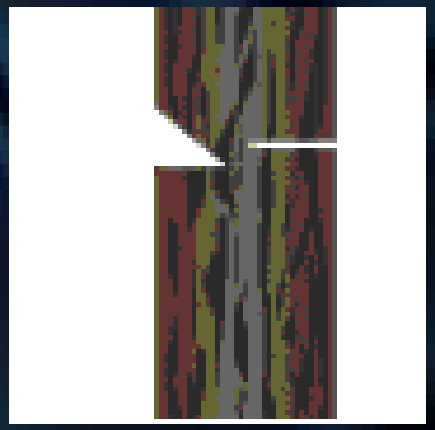


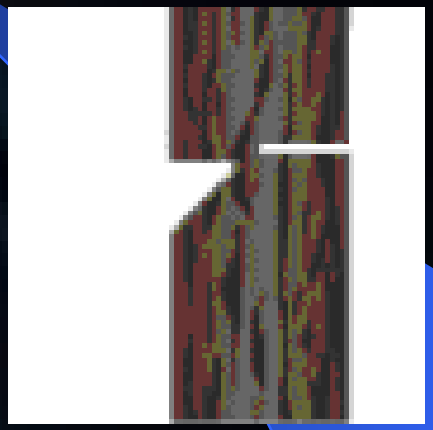
How To Escape

- **NEVER turn your back on the falling tree!**
- **Walk quickly away to a distance of no-less than 20 feet from the falling tree.**
- **Get behind a standing tree if possible.**

3 Types of Notches



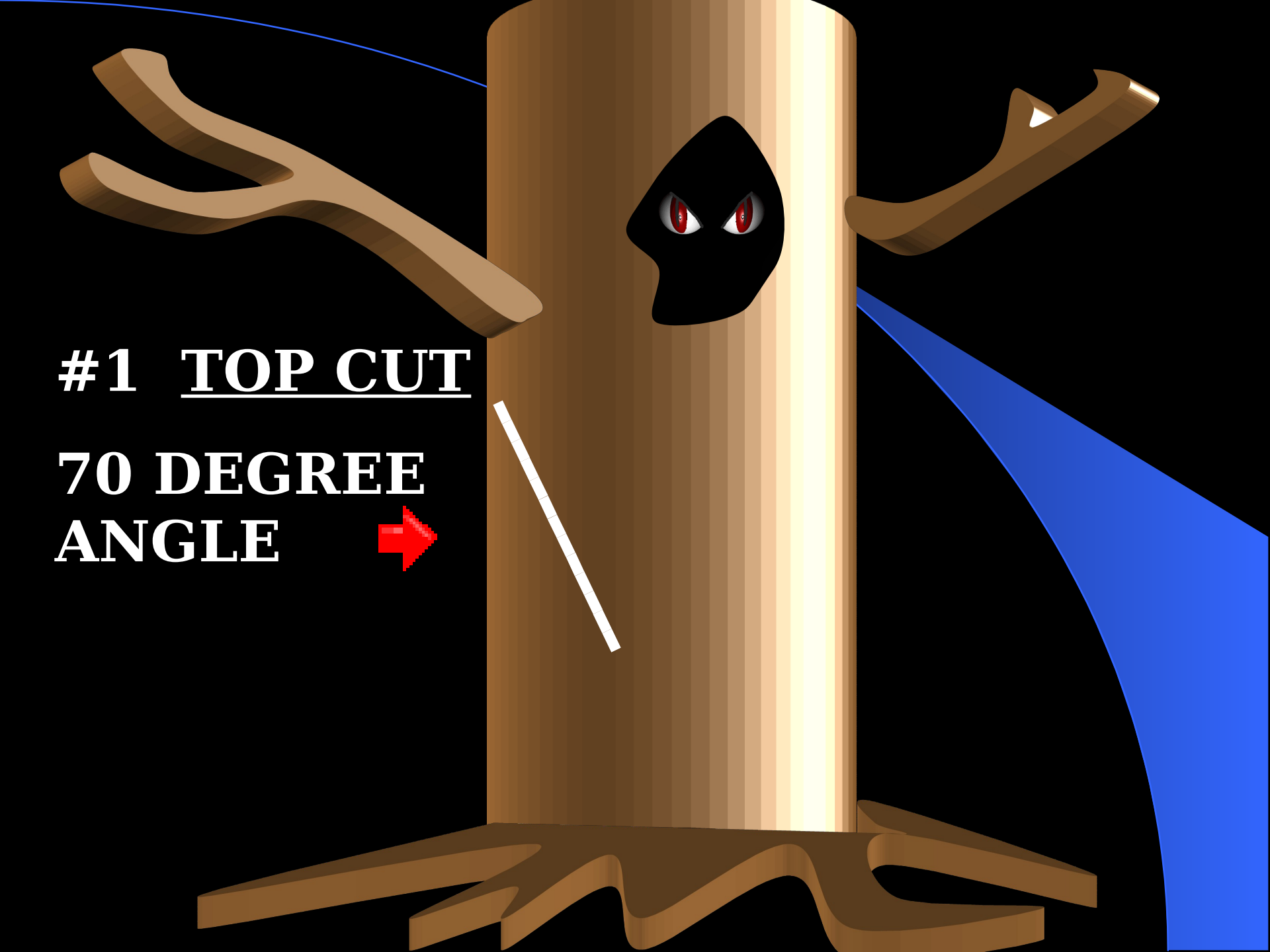




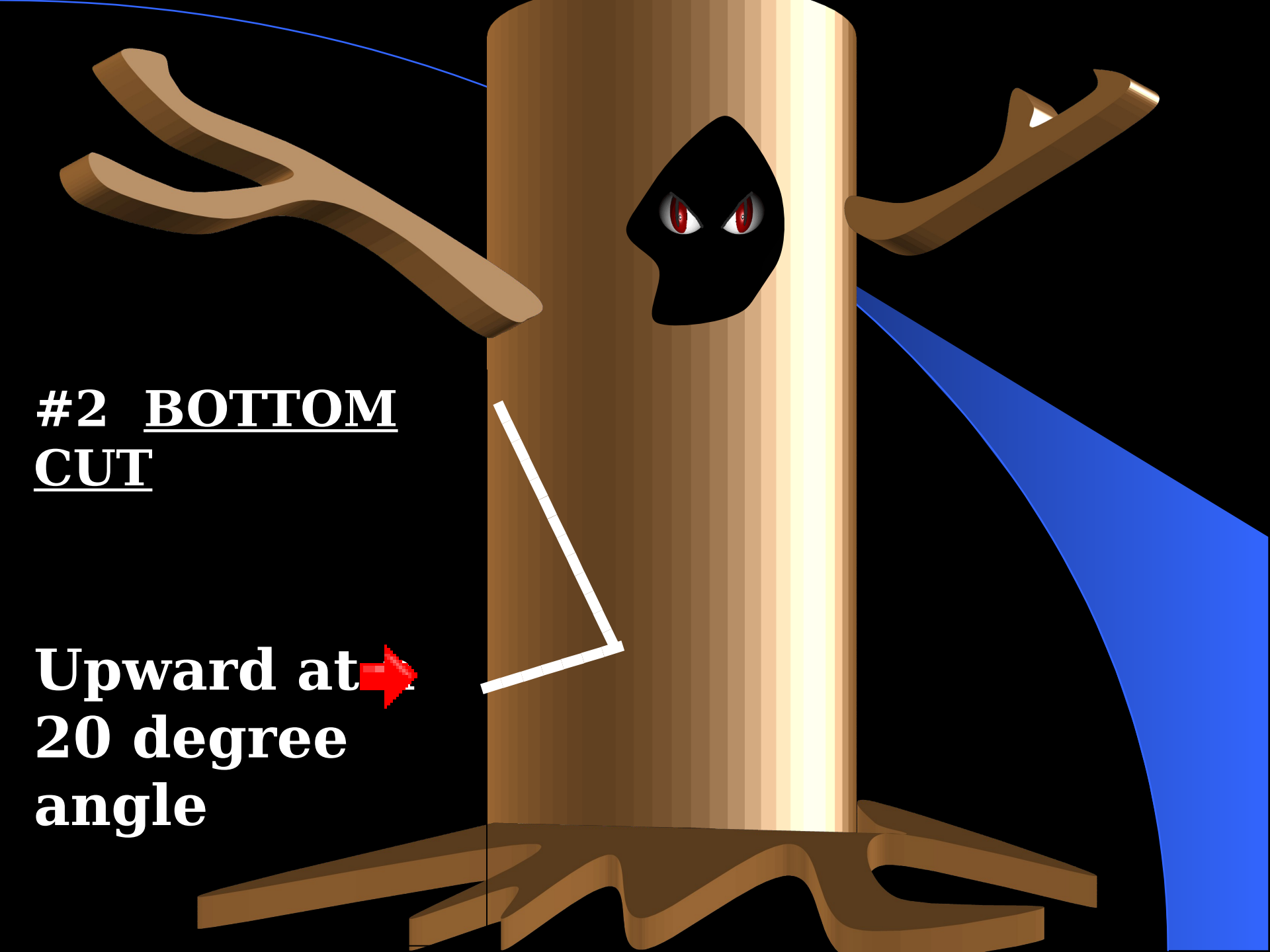
Open Faced Notch
Humboldt Notch

Conventional Notch

- **OPEN FACE NOTCH TOP CUT**
  - **Begin at any height below chest level as long as you allow enough room for the undercut**
  - **Cut downward at an angle of 70 degrees**
  - **Stop when the cut reaches 1/4 to 1/3 of the trunk's diameter**


#1 TOP CUT
70 DEGREE
ANGLE

- **OPEN FACE BOTTOM CUT**
  - Cut upward at a 20 degree angle
  - Stop when the cut reaches the end point of the face cut. Ideally, you have created a 90 degree notch opening.


#2 BOTTOM CUT
Upward at
20 degree angle

- **Begin on the opposite side of the notch at the same level as the notched corner**
- **Cut flat along a horizontal plane**
- **Stop at the point that will leave a hinge width that is 1/10 the tree's diameter**

#3 BACK CUT
p at the point that will leave a hinge width that is 1/10 the tree's diame

OPEN FACE NOTCH

- **The angle of attack for the top (first) cut is downward at an angle of 45 degrees.**
- **Stop when the cut reaches 1/4 to 1/3 of the trunk’s diameter.**
- **The bottom cut is parallel to the deck and intersects with the inner point of the top cut.**
- **The back cut should be parallel to the deck and <u>one inch above</u> the bottom cut.**

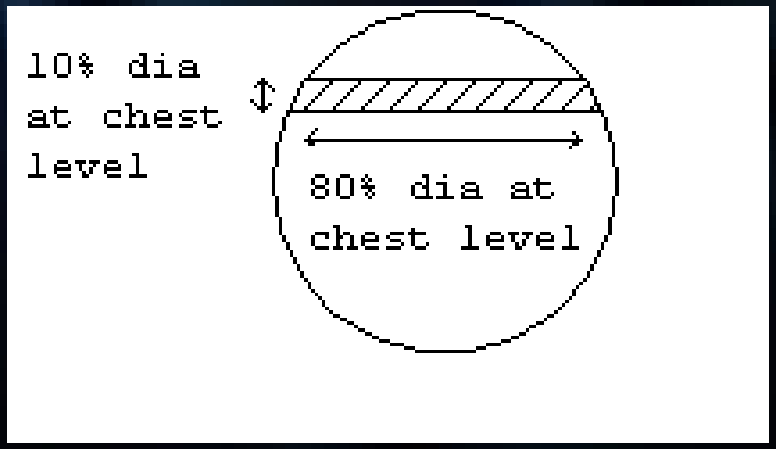
- **The top (first) cut is made horizontally with no angle.**
- **Stop when the cut reaches 1/4 to 1/3 of the trunk’s diameter.**
- **The bottom cut is cut at a 45-degree angle upward to intersect with the inner point of the top cut.**
- **The back cut should be parallel to the deck and <u>one inch above</u> the top cut.**

PROPER HINGE

> LENGTH - 80% OF THE DIAMETER OF THE TREE AT CHEST HEIGHT

> WIDTH - 10% OF THE DIAMETER OF THE TREE AT CHEST HEIGHT

> DIRECTION - ON A TREE WITH NO SIDE LEAN, PERPENDICULAR TO THE INTENDED DIRECTION OF FALL



IMPROPER HINGE

> CAUSED BY CUTTING ANY OF THE 3 TYPES OF CUTS AT AN INCORRECT ANGLE

- **LEANING TREES:**

> CAN BE MADE TO FALL IN A DIRECTION DIFFERENT FROM THE LEAN

> USE HOLDING CORNER

HOLDING CORNER

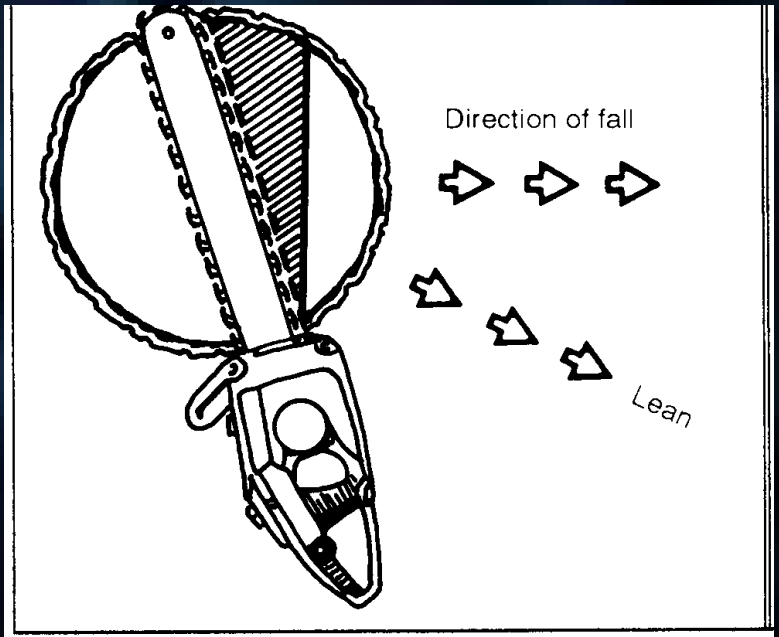


Figure 5-8. Holding a corner

- **LEANING TREES (con't):**

  > WIND

  > USE TIMBER WEDGES, POLES OR TRACTORS

  > CHAIN OR ROPE

- **HEAVY LEANING TREES:**

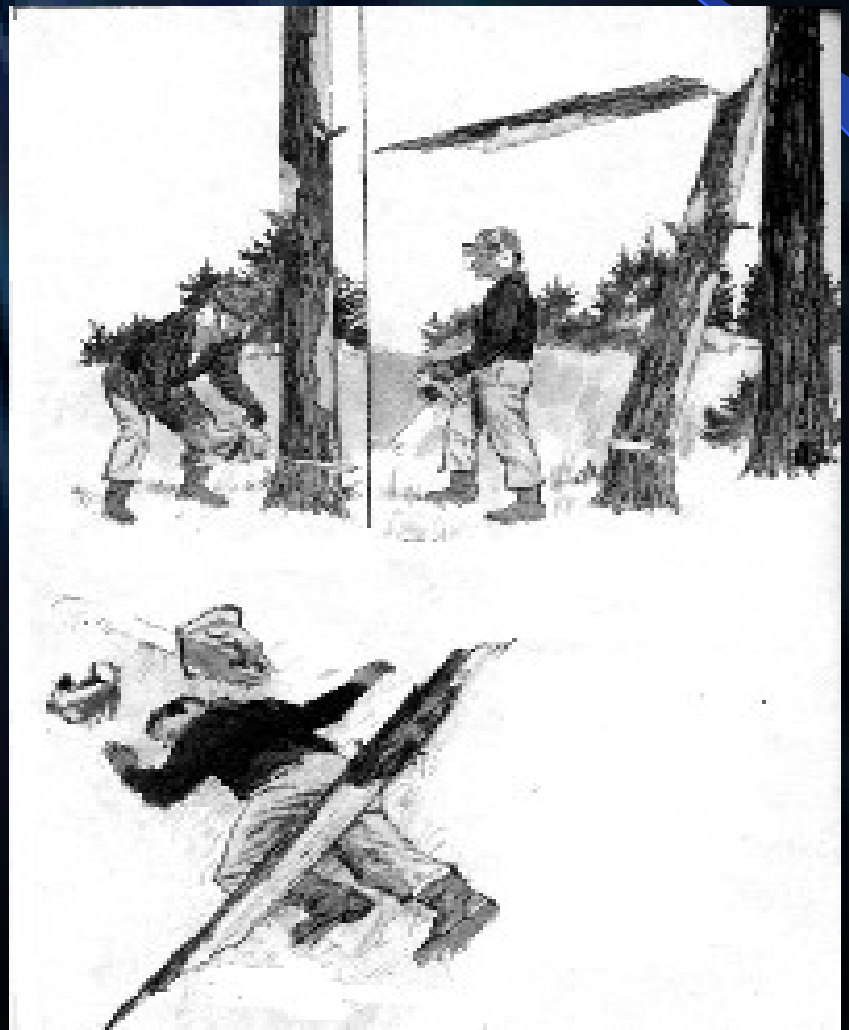
  > ATTACH A CHAIN OR CABLE HIGH ON THE TRUNK, ABOVE THE NOTCH

  > USING MECHANICAL MEANS, PULL DOWN IN

  DESIRED DIRECTION

- **CUT HIGH ENOUGH TO AVOID MOST OF THE ROT**
- **USE AN AX FOR BAD DECAY**

Results of Incorrect Felling



Results of Incorrect Felling

- Barber Chair
- Stalled Tree
  (CAUSED BY A DUTCHMAN)
- Kickback

Results of Incorrect Felling

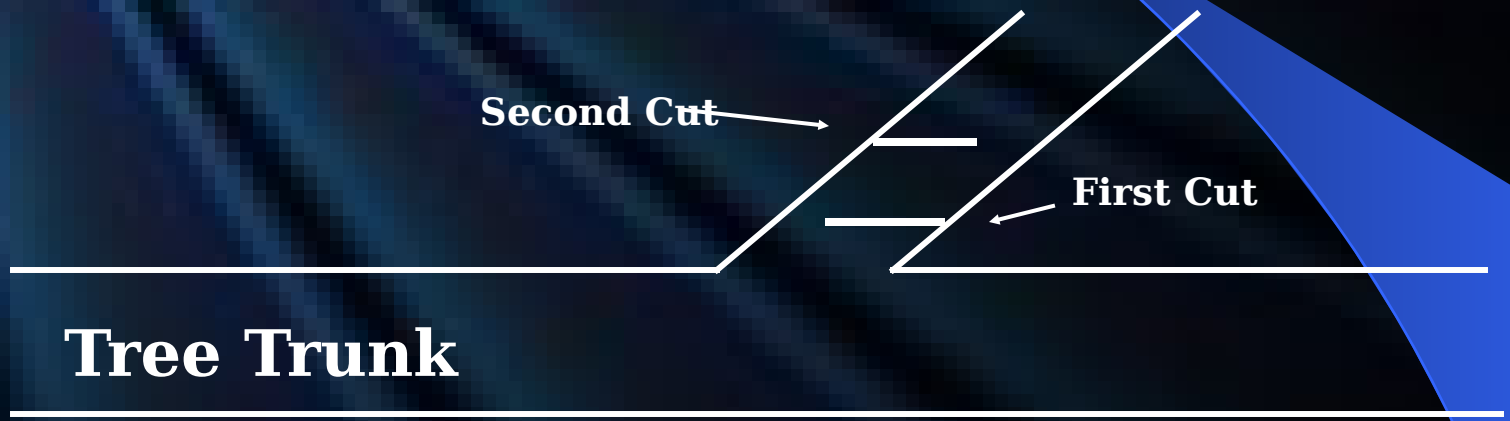
HUNG TREE

LIMBING THE TREE

- **Cut from the base to the top of the tree**
- **Cut limbs from the opposite side of the tree from which you are standing when possible**
- **Cut the limb even with the bark**
- **If a pinch occurs, stop the engine and remove the saw by lifting the limb**

LIMB LOCK

- **This reduces the likelihood of a limb under pressure kicking back and striking the logger's leg or pinching the saw.**

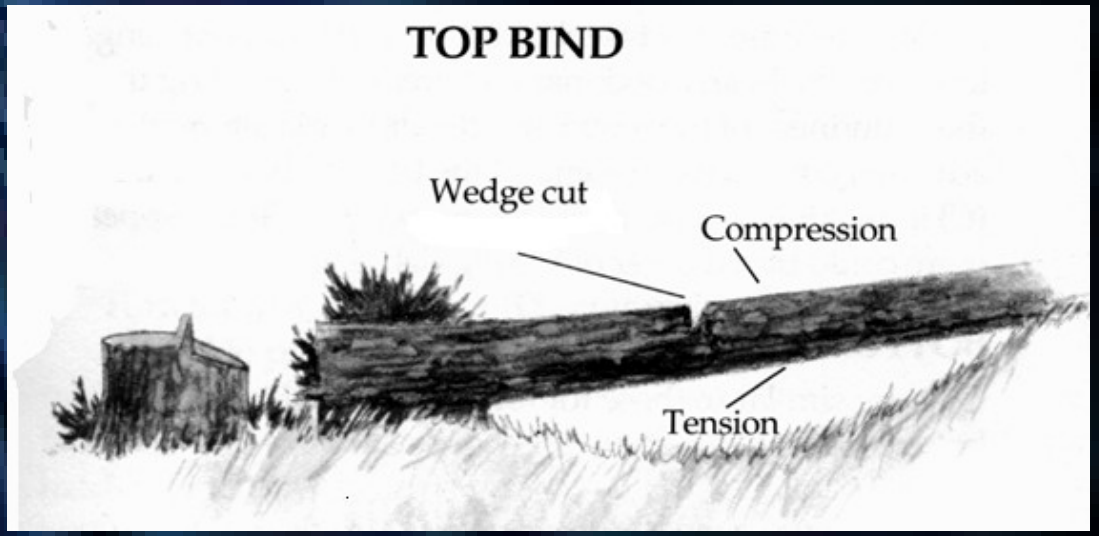


- **Use Teamwork**

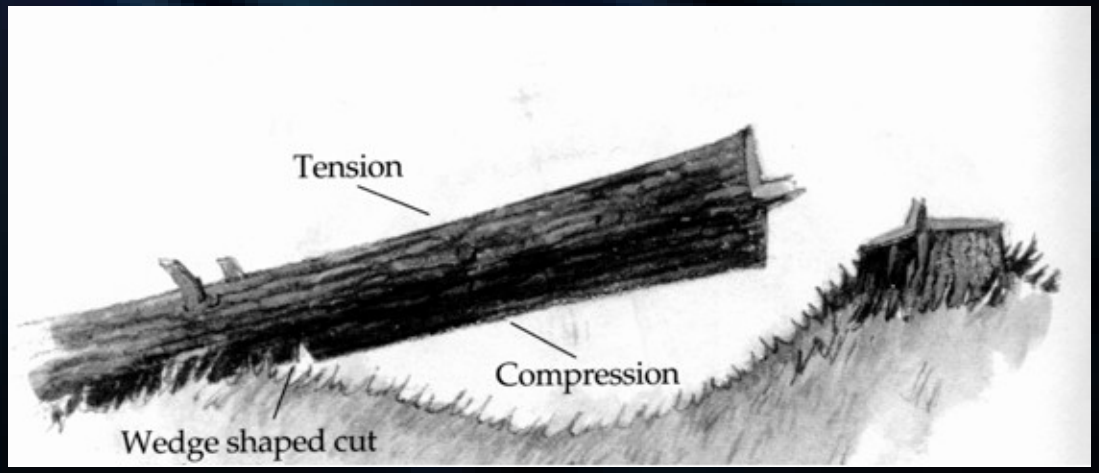
BUCKING THE TREE

- **Watch for binding and kickback**

TOP BIND



BOTTOM BIND



- **If the saw pinches, stop the engine**
  - **Use the peavy to un-pinch the bar**
- **Butt Movement/Butt Twist**

HAZARDS

OVERHEAD HAZARDS

- **WEATHER**
  - RAIN
  - SNOW / ICE
  - WIND
- **ADJACENT TREES**
  - WIDOW MAKERS
  - THROWBACKS
  - SNAGS
- **POWER LINES**

GROUND HAZARDS

- TERRAIN
  - > HILLS
- ENTAGLEMENTS
  - > BRUSH AND SAPLINGS
- PERSONNEL AND EQUIPMENT
- SITE LAYOUT

DETERMINING THE HEIGHT OF A TREE

"OFFSET METHOD"

- **Have one Marine stand at the center/base of the tree**
- **Holding a straight object such as a pen at arms length, position yourself so that the tip of the pen is at the highest point of the tree, and the bottom of the pen is at the Marine's feet**
- **Turn the pen at a 90-degree angle left or right. The base of the pen should still be at the Marine's feet**
- **Have the Marine face 90 degrees to the left or right. Instruct the Marine to walk forward until his feet are at the tip of the pen and halt**
- **Mark the spot where the Marine stopped;**

PPE

- HEAD
- EARS
- FACE / EYES
- HANDS
- LEGS
- FEET